Hydrologic Model Manager

Short Name	RRMT & MCAT
Long Name	Rainfall-Runoff Modelling Toolbox (RRMT) & Monte-Carlo Analysis Toolbox (MCAT)
Description	
Model Type	Lumped Conceptual Modelling Framework
Model Objectives	The toolkit allows the development (RRMT) and analysis (MCAT) of conceptual or metric-conceptual models
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Model Structure	A range of generic tools is provided for model building, calibration and uncertainty analysis. The user can choose between different conceptual or data-based mechanistic model components as a function of modeling objective, data availability and catchment characteristics
Interception	
Groundwater	
Snowmelt	
Precipitation	
Evapo-transpiration	
Infiltration	
Model Paramters	Depending on selected model components
Spatial Scale	All model structures are spatially lumped
Temporal Scale	Ranges from minutes to months
Input Requirements	Depending on selected model components, typically: Rainfall, and temperature or potential evapotranspiration
Computer Requirements	RRMT and MCAT require Matlab Version 5.x. Both toolboxes are developed under MS Windows
Model Output	All model structures estimate streamflow at the catchment outlet. Internal states (e.g. soil moisture) and estimates of actual evapotranspiration are calculated depending on the selected model structure
Parameter Estimatn Model Calibrtn	Population evolution, system identification techniques and Monte-Carlo methods are available and can be used when appropriate. MCAT also allows investigation of the results of multiple objective calibration exercises
Model Testing Verification	The applicability of the modeling toolkit has been corroborated by a number of successful studies including data sets from the USA, the UK and Southern Africa. These catchments range from wet to very dry, and their size from a couple of hundred to almost 10000 km2
Model Sensitivity	Sensitivity analysis is assumed to be an integral part of each modeling procedure performed using the toolkit. The sensitivity method implemented is a modification of the well-known Regional Sensitivity Analysis.

Model Reliabiity	Model reliability is tested as an integral part of the model building and analysis procedure.
Model Application	Two applications demonstrate the modeling philosophy on which the modeling toolkit is based. The first example demonstrates the use of multiple objectives to analysis parameter sensitivity and identifiability. The second example shows the trade-off between parameter identifiability and model performance due to the selected model complexity.
Documentation	User manuals for both toolboxes are available
Other Comments	The philosophy behind the development of the presented toolkit is based on the need for a parsimonious, i.e. simple in terms of number of parameters, model framework, which allows its user to select or develop an appropriate model structure due to her or his needs. This approach is based on the assumption that no model structure is suitable under all circumstances and a generic modeling framework is therefore required.
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